

# THE SPECTER OF PRODUCTIVISM AND FOOD DEMOCRACY

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## INTRODUCTION: THE BIRTH OF THE PRODUCTIVIST PARADIGM

Fifty years ago, the main challenge facing the food systems could be summarized in the simplest of terms: it had to produce enough to keep up with the rise in demand for foodstuffs. The rate of population growth reached its peak in the 1960s, with an estimated 2.19 percent annual increase in 1963—almost double what it is today.<sup>1</sup> In 1968, Paul R. Ehrlich predicted in his best-selling book, *The Population Bomb*, that under a business-as-usual scenario, entire regions would be facing starvation because agricultural output would be unable to catch up with

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1. According to the United States Census Bureau, the annual population growth rate peaked at 2.19 percent in 1963, decreasing to 1.14 percent by 2013. *International Programs: World Population Growth Rates: 1950–2050*, U.S. CENSUS BUREAU, [http://www.census.gov/population/international/data/worldpop/graph\\_growthrate.php](http://www.census.gov/population/international/data/worldpop/graph_growthrate.php) (last visited Mar. 20, 2014). The U.N. Population Division of the U.N. Department on Economic and Social Affairs (DESA) estimates that the peak in the rate of demographic growth was reached in 1965–70, at an annual rate of 2.04 percent; the rate of growth was 1.31 percent in 1999–2000. See United Nations Dep’t of Econ. & Soc. Affairs Population Div., *The World at Six Billion*, 10 fig.2, U.N. Doc. ESA/P/WP.154 (1999) [hereinafter *The World at Six Billion*], available at <http://www.un.org/esa/population/publications/sixbillion/sixbilpart1.pdf>.

demographic growth and the shifting diets linked to urbanization.<sup>2</sup> The world, it seemed to many, was on the edge. In much of the developing world, yields per surface had been stagnating for decades, and it was precisely there that overpopulation was threatening and that the ability for governments to make up for food deficits through imports was weakest. Indeed, when in 1972, bad harvests in the former U.S.S.R. combined with the first oil shock the following year, the real prices of food commodities skyrocketed suddenly on international markets; as the U.S.S.R. quietly bought all the grain reserves that they could capture and as the price of fertilizers suddenly peaked, the doomsday predictions of the neo-Malthusians seemed to turn into reality.<sup>3</sup>

Population growth and insufficient productivity growth were threatening the ability of entire regions to feed themselves, and with rising prices, basic food commodities could be out of reach of the poor: the answer was to produce more. This was the mindset that shaped the choices made in the late 1960s and early 1970s, inaugurating a trend that lasted forty years almost without interruption. The specific responses were different from region to region, but the general approach was similar all over. Thanks to a combination of technological advances and public policies—including the use of subsidies to farmers—outputs were raised and prices driven down. In the United States, President Nixon’s Secretary of Agriculture, Earl Butz, was credited with the revolution that took place. In 1973, he launched a massive program to encourage the production of grain—corn especially—in the American countryside, most notably by introducing direct payments to farmers to compensate for the otherwise low payments they would receive for their crops in situations of overproduction.<sup>4</sup> Farmers were encouraged to grow more and faster, and they were told not to worry about the risk of glut in the markets—if the prices were not sufficient to cover the costs, the government would intervene and make up the difference.<sup>5</sup>

But it was in South Asia that the risks associated with overpopulation were considered to be the highest.<sup>6</sup> This was not simply because of the threat of food scarcity associated with fertility rates that were among the highest of the world. It was also because of the

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2. PAUL R. EHRLICH, *THE POPULATION BOMB* 13–37 (2d ed. 1969).

3. MICHAEL POLLAN, *THE OMNIVORE’S DILEMMA: A NATURAL HISTORY OF FOUR MEALS* 51–52 (2d ed. 2007); Greg Myre, *The 1973 Arab Oil Embargo: The Old Rules No Longer Apply*, NPR PARALLELS (Oct. 16, 2013, 12:15 PM), <http://www.npr.org/blogs/parallels/2013/10/15/234771573/the-1973-arab-oil-embargo-the-old-rules-no-longer-apply>.

4. POLLAN, *supra* note 3, at 51–53.

5. *Id.* at 52–53.

6. *See* NICK CULLATHER, *THE HUNGRY WORLD: AMERICA’S COLD WAR BATTLE AGAINST POVERTY IN ASIA* 1–10 (2010).

communist regimes established in China in 1949, in North Korea following the conflict of 1950–53, and the insurrection in Vietnam that would lead to the defeat of the United States-supported camp in 1975: sympathies for solutions inspired by socialist experiments, it was felt, would grow if no solution was found to the massive rural poverty in countries such as India, Pakistan, or the Philippines.<sup>7</sup>

Indeed, this is where the term “Green Revolution” originated.<sup>8</sup> The expression refers to a kind of agricultural development based on a set of technologies and strong state support, first pioneered in Mexico in 1943, under a joint program of the Rockefeller Foundation and the Mexican government for the improvement of wheat, and later exported to Latin American countries in the 1950s and then to South Asia in the 1960s.<sup>9</sup> But the label was in fact a retrospective one. It originated in a famous statement made in 1968 by William Gaud, the U.S. Agency for International Development Administrator, who described the spread of new wheat and rice technology in Asia as containing “the makings of a new revolution.”<sup>10</sup> “It is not a violent Red Revolution like that of the Soviets or the White Revolution in Iran,” he said, “[b]ut rather, I call it a Green Revolution based on the application of science and technology.”<sup>11</sup> As an agronomic revolution, the Green Revolution was based on the development and expansion of new varieties, particularly semi-dwarf wheat and rice varieties; on the extension of irrigated land; and on a massive increase in the use of chemical fertilizers and mechanization.<sup>12</sup> The significance of the Green Revolution was at least as much political as it was agronomic; however, the state had decided to make boosting agricultural productivity a priority, and it framed the questions of hunger and malnutrition primarily as a *quantitative* problem—as a mismatch between supply and demand—that technology, combined with public policies in support of farmers, would be able to address.

By their own standards, the revolutions in food systems that were launched in the 1960s and 1970s were a spectacular success. The yields

7. On this geopolitical dimension, see generally *id.*; JOHN H. PERKINS, *GEOPOLITICS AND THE GREEN REVOLUTION: WHEAT, GENES, AND THE COLD WAR* (1997).

8. CULLATHER, *supra* note 6, at 7; PERKINS, *supra* note 7, at 256–62.

9. Norman E. Borlaug & Christopher Dowsell, Comm. on World Food Sec., CFS Distinguished Lecture Series Thirtieth Session: The Green Revolution: An Unfinished Agenda (Sept. 20–23, 2004) (document from the Committee on World Food Security’s Thirteenth Session) (on file with the FAO Corporate Document Repository at CFS:2004/INF/11), available at <http://www.fao.org/docrep/meeting/008/j3205e/j3205e00.HTM>.

10. *Id.* ¶ 4.

11. *Id.*

12. *Id.* ¶¶ 2–10. See also Norman E. Borlaug, 1970 Nobel Peace Prize Laureate, Special 30th Anniversary Lecture at the Norwegian Nobel Institute: The Green Revolution Revisited and the Road Ahead (Sept. 8, 2000).

increased massively during the following decades.<sup>13</sup> While the rates of population growth continued to decline beginning in the late 1960s, the total output per hectare of agricultural land continued to grow steadily, at about 2.1 percent per year over the past fifty years.<sup>14</sup> This allowed agricultural production to increase calorie availability per capita without significantly expanding the areas under cultivation. In 1961, the world population of 3.5 billion people was fed by cultivating 1.37 billion hectares of land; fifty years later, when the population doubled to 7 billion people, only 12 percent more land—a total of 1.53 billion hectares—was used for cultivation.<sup>15</sup>

### I. PRODUCTIVISM WITH THE BENEFIT OF HINDSIGHT

Assessed from the point of view of their contribution to health and well-being, however, the food systems we inherited from the twentieth century have failed spectacularly. It is worth noting this remarkable fact: despite the impressive increase in agricultural output per capita, the number of hungry people has hardly been reduced throughout the period, and as a proportion of the total population, the hungry and the malnourished remain an unacceptably high contingent.<sup>16</sup> Of course, whether we deem the past approaches to have succeeded or to have failed depends both on our baseline (and particularly whether anything short of the complete eradication of hunger can be called a success) and on how we measure whatever has been achieved. The recent debates about “how to measure hunger” illustrate that providing such a measure is anything but straightforward. Using a new method for calculating

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13. See generally PRODUCTIVITY GROWTH IN AGRICULTURE: AN INTERNATIONAL PERSPECTIVE (Keith O. Fuglie, Sun Ling Wang & V. Eldon Ball eds., 2012).

14. *The World at Six Billion*, *supra* note 1, at 10 fig.2 (1999); Keith O. Fuglie & Sun Ling Wang, *New Evidence Points to Robust but Uneven Productivity Growth in Global Agriculture*, AMBER WAVES, Sept. 2012, at 3.

15. Keith Fuglie & Alejandro Nin-Pratt, Int'l Food Policy Research Inst., *Agricultural Productivity: A Changing Global Harvest*, in 2012 GLOBAL FOOD POLICY REPORT 15 (2013).

16. The U.N. Food and Agriculture Organization (FAO) estimates that the number of hungry people was 960 million in 1969–71, representing 37 percent of the total population, and 923 million in 1979–81, representing 28 percent; 920 million people were still undernourished a decade later, in 1990–92, although taking into account population growth, this meant a further reduction of 8 percentage points (to 20 percent) during the 1980s. See UNITED NATIONS FOOD & AGRIC. ORG., THE STATE OF FOOD INSECURITY IN THE WORLD 2006, at 8 (2006) (calculations of the absolute figures by the author). Thus, although cross-temporal comparisons are difficult to make due to changes in methodology across the whole period, the absolute number of hungry people hardly declined over the past forty years.

undernourishment since *The State of Food Insecurity 2012*,<sup>17</sup> U.N. agencies today estimate hunger in its most extreme form—defined as “food energy availability [that] is inadequate to cover even minimum needs for a sedentary lifestyle”<sup>18</sup>—to have decreased globally from over 1 billion in 1990–92, representing 18.9 percent of the world’s population, to 842 million in 2011–13, or 12 percent of the population.<sup>19</sup> But the apparent progress reported is in part the result of how undernourishment is counted—and the count here is very restrictive indeed. The figures presented do not capture short-term undernourishment when it does not translate into insufficient energy intake on a year-long average,<sup>20</sup> and they neglect inequalities in intra-household distribution of food, although it is well known that women and girls within households are the first ones to sacrifice themselves in times of crisis and are generally discriminated against in their access to food.<sup>21</sup> Moreover, as already noted, the calculations are based on a low threshold of daily energy requirements that assume a sedentary lifestyle, whereas many of the poor perform physically demanding activities in difficult conditions. Using data from the U.N. Food and Agriculture Organization (FAO), researchers have calculated that if we were to take into account the calorie requirements for “normal” activity, the relatively encouraging figure of 868 million undernourished people in the world announced in

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17. UNITED NATIONS FOOD & AGRIC. ORG., *THE STATE OF FOOD INSECURITY IN THE WORLD: ECONOMIC GROWTH IS NECESSARY BUT NOT SUFFICIENT TO ACCELERATE REDUCTION OF HUNGER AND MALNUTRITION* 1–61 (2012) [hereinafter *SOFI 2012*] (showing the change in undernourished people across the world since 1990).

18. *Id.* at 50.

19. UNITED NATIONS FOOD & AGRIC. ORG., *THE STATE OF FOOD INSECURITY IN THE WORLD: THE MULTIPLE DIMENSIONS OF FOOD SECURITY* 6, 8 (2013).

20. *The State of Food Insecurity in the World 2012* report justifies this choice as follows:

If our interest is in highlighting deep, chronic undernourishment, the reference period should be long enough for the consequences of low food intake to be detrimental to health. Although there is no doubt that temporary food shortage may be stressful, the FAO indicator is based on a full year, with the average consumption of food over the period referred to as the habitual level.

*SOFI 2012*, *supra* note 17, at 50. In fact, however, even short-term deprivation can lead to long-term consequences, particularly when they affect pregnant women or children before their second birthday. See Victora et al., *Maternal and Child Undernutrition: Consequences for Adult Health and Human Capital*, 371 *LANCET* 340, 340–57 (2008). See also Harold Alderman, John Hoddinott & Bill Kinsey, *Long Term Consequences of Early Childhood Malnutrition*, 58 *OXFORD ECON. PAPERS* 450, 450–74 (2006) (showing the long-term impacts of early undernourishment on economic productivity).

21. See INT’L FOOD POLICY RESEARCH INST., *INTRAHOUSEHOLD RESOURCE ALLOCATION IN DEVELOPING COUNTRIES: MODELS, METHODS, AND POLICY* (Lawrence Haddad, John Hoddinott & Harold Alderman eds., 1997).

2012 (immediately after the revised methodology was introduced) would have to be revised upwards by 53 percent, leading to an estimate of 1.33 billion people undernourished—a result which puts the positive messages from the most recent estimates “in a different light.”<sup>22</sup>

Calorie intake alone, moreover, which is the sole indicator for undernutrition in the official data on hunger, says little about nutritional status.<sup>23</sup> “Lack of care or inadequate feeding practices for infants, as well as poor health care or water and sanitation, also play a major role.”<sup>24</sup> And food intake itself cannot be assessed solely on the basis of its energy content: even where food intake provides a sufficient amount of calories,

inadequate diets can result in micronutrient deficiencies such as a lack of iodine, of vitamin A, or of iron, to mention only the deficiencies that are the most common in large parts of the developing world. Globally, over 165 million children are stunted—so malnourished that they do not reach their full physical and cognitive potential—and 2 billion people globally lack vitamins and minerals essential for good health. Too little has been done to ensure adequate nutrition, despite the proven long-term impacts of adequate nutrition during pregnancy and before a child’s second birthday.<sup>25</sup>

This is true of low-income countries where undernutrition is the major concern. But it is true also in middle- and high-income countries. Official estimates indicate that in the United States itself, 49 million Americans—one in six—live in “food insecure” households, meaning they cannot afford adequate food for themselves or their families.<sup>26</sup> Addressing child malnutrition in particular should therefore be a priority, including in the United States. Studies show “that access to food stamps in childhood leads to a significant reduction in the incidence of obesity,

22. Frances Moore Lappé et al., *How We Count Hunger Matters*, 27 ETHICS & INT’L AFF. 251, 252–53 (2013).

23. Special Rapporteur on the Right to Food, *The Transformative Potential of the Right to Food*, Hum. Rts. Council, ¶ 5, U.N. Doc. A/HRC/25/57 (Jan. 24, 2014) [hereinafter *Transformative Potential*] (by Olivier De Schutter).

24. *Id.*

25. *Id.* (citation omitted). “It has been calculated that for any \$1 spent on reducing stunting, \$44.50 in returns, as a result of improved earnings, could be expected.” *Id.* ¶ 5 n.5 (citing JOHN HODDINOTT ET AL., COPENHAGEN CONSENSUS, CHALLENGE PAPER: HUNGER AND MALNUTRITION (2012)).

26. *Food Security in the U.S.*, U.S. DEP’T OF AGRIC., <http://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics.aspx#foodsecure> (last updated Sept. 4, 2013).

high blood pressure and diabetes in later life and, for women, an increase in economic self-sufficiency.”<sup>27</sup>

In recent years, scientists have called for greater integration of nutrition concerns in food security strategies, not only because of micronutrient deficiencies—colloquially referred to as “hidden hunger”—but also because of the links between inadequate diets and being overweight or obese.<sup>28</sup> “Worldwide, the prevalence of obesity doubled between 1980 and 2008.”<sup>29</sup> More than 1 billion adults are now overweight, and 500 million others are obese.<sup>30</sup> Combined with more sedentary lifestyles and tobacco and alcohol consumption, inadequate diets are resulting in the rise of noncommunicable diseases: type 2 diabetes, heart disease, and gastrointestinal cancers—all directly related to diets—are now rapidly growing in all regions, and not only in rich countries as was the case in the past. For instance, in Mexico, where the nutrition transition has been particularly brutal,

[s]ome 35 million adult Mexicans (7 out of 10) are overweight or obese; these people will live ill, on average, for 18.5 years during their lifetime. . . . The Ministry of Health has calculated that this phenomenon cost Mexico 42,246 billion pesos (\$1.822 billion) in medical care in 2008, representing 0.3 per cent of GDP, and 25,099 billion pesos (\$3.067 billion), or 0.2 per cent of GDP, in premature deaths. By 2017, the direct costs of obesity will rise to 78 billion pesos (\$5.65 billion); already today, 15 per cent of total health-care expenses in Mexico are for the treatment of diabetes.<sup>31</sup>

The evolution of food systems is directly responsible for these health impacts. As supply chains have become more global and as middle-class consumers in emerging countries have shifted to so-called “western” diets, the consumption of staple grains, meat and dairy products, vegetable oil, salt, and sugar has increased in significant

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27. *Transformative Potential*, *supra* note 23, ¶ 5 n.6 (citing Hilary W. Hoynes et al., *Long Run Impacts of Childhood Access to the Safety Net 3* (Nat’l Bureau of Econ. Research, Working Paper No. 18535, 2012)).

28. DAVID STUCKLER & KAREN SIEGEL, *SICK SOCIETIES: RESPONDING TO THE GLOBAL CHALLENGE OF CHRONIC DISEASE* 187–88 (2011).

29. *Transformative Potential*, *supra* note 23, ¶ 5.

30. *Obesity and Overweight*, WORLD HEALTH ORG., <http://www.who.int/mediacentre/factsheets/fs311/en/> (last updated Mar. 2013).

31. Special Rapporteur on the Right to Food, *Mission to Mexico*, Hum. Rts. Council, ¶ 48, U.N. Doc. A/HRC/19/59/Add.2 (Jan. 17, 2012) (by Olivier De Schutter) (citing Ping Zhang et al., *Global Healthcare Expenditure on Diabetes for 2010 and 2030*, 87 *DIABETES RES. & CLINICAL PRAC.* 293, 296–97 (2010)).

proportions, whereas the intake of dietary fiber have been reduced.<sup>32</sup> In particular, the rapid increase in vegetable oil consumption (and thus of fats in diets) can be explained largely by the sudden availability of vegetable oil (particularly soybean oil) at low prices on the world market, and the increased reliance on processed foods is directly attributable to the high subsidies to large grain producers, providing the food processors with large volumes of cheap inputs.<sup>33</sup> Mexico again provides a striking illustration:

[F]ollowing the entry into force of the North American Free Trade Agreement, United States companies massively increased investments in the Mexican food processing industry (from \$210 million in 1987 to \$5.3 billion in 1999) and sales of processed foods in Mexico soared at an annual rate of 5 to 10 per cent in the period from 1995 to 2003. The resulting rise in soft drink and snack consumption by Mexican children is [a major factor in] the very high rates of child obesity in [this] country.<sup>34</sup>

In addition to the failure to make significant improvements to nutritional outcomes, the focus on increasing agricultural production has also had a severe environmental impact. “The twentieth-century ‘Green Revolution’ technological package combined the use of high-yielding plant varieties with increased irrigation, the mechanization of agricultural production and the use of nitrogen-based fertilizers and pesticides.”<sup>35</sup> Once combined with state support in the form of subsidies and marketing, this was effective in increasing production volumes of major

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32. Corinna Hawkes, *Uneven Dietary Development: Linking the Policies and Processes of Globalization with the Nutrition Transition, Obesity and Diet-Related Chronic Diseases*, GLOBALIZATION & HEALTH (Mar. 28, 2006), <http://www.globalizationandhealth.com/content/2/1/4>.

33. *Id.*

34. Special Rapporteur on the Right to Food, *Report Submitted by the Special Rapporteur on the Right to Food, Oliver De Schutter*, Hum. Rts. Council, ¶ 34 & n.53, U.N. Doc. A/HRC/19/59 (Dec. 26, 2011) (by Olivier De Schutter) (citing Hawkes, *supra* note 32 (“noting that consumption of Coca-Cola drinks increased from 275 8oz servings per person per year in 1992 to 487 in 2002, which is higher even than in the United States”)); Arturo Jiménez-Cruz et al., *Consumption of Fruits, Vegetables, Soft Drinks, and High-Fat-Containing Snacks among Mexican Children on the Mexico-U.S. Border*, 33 ARCHIVES MED. RES. 74 (2002) (noting that the consumption of fruits and vegetables has declined and the consumption of high-fat-containing snacks has increased among Mexican children); Thomas L. Leatherman & Alan Goodman, *Coca-Colonization of Diets in the Yucatan*, 61 SOC. SCI. & MED. 833 (2005) (describing how Yucatec Mayan diets have become dependent on processed foods)).

35. *Transformative Potential*, *supra* note 23, ¶ 6; *see also* Borlaug, *supra* note 12; Borlaug & Dowswell, *supra* note 9, ¶¶ 4, 6.

cereals (particularly maize, wheat, and rice) and soybeans. That result was consistent with the central tenets of the Green Revolution, conceived as an attempt to meet the challenge as it was framed at the time: to ensure that increases in agricultural productivity would match population growth and the dietary transition facilitated by rising incomes and fast-growing urbanization. It led, however, to an extension of monocultures and thus to a significant loss of agro-biodiversity<sup>36</sup> and to accelerated soil erosion. “The overuse of chemical fertilizers polluted fresh water, increasing its phosphorus content and leading to a flow of phosphorus to the oceans which is estimated to have risen to approximately 10 million tons annually.”<sup>37</sup> Phosphate and nitrogen water pollution is the main cause of eutrophication—the human-induced augmentation of natural fertilization processes which spurs algae growth that absorbs the dissolved oxygen required to sustain fish stocks.<sup>38</sup>

The most potentially devastating impacts of industrial modes of agricultural production stem from their contribution to increased greenhouse gas emissions. Together, field-level practices represent approximately 15 percent of total man-made greenhouse gas emissions in the form of nitrous oxide (N<sub>2</sub>O) from the use of organic and inorganic nitrogen fertilizers, methane (CH<sub>4</sub>) from flooded rice fields and livestock, and carbon dioxide (CO<sub>2</sub>) from the loss of soil organic carbon in

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36. The First FAO Report on the *State of the World's Plant Genetic Resources*, based on more than 150 country reports, prepared for the International Technical Conference on Plant Genetic Resources held in Leipzig, Germany, June 17–23, 1996, concluded that

[t]he main cause of genetic erosion in crops . . . is the replacement of local varieties by improved or exotic varieties and species. As old varieties in farmers' fields are replaced by newer ones, genetic erosion frequently occurs because the genes and gene complexes found in the diverse farmers' varieties are not contained *in toto* in the modern variety. In addition, the sheer number of varieties is often reduced when commercial varieties are introduced into traditional farming systems.

UNITED NATIONS FOOD & AGRIC. ORG., *THE STATE OF THE WORLD'S PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE 33* (1997), available at <ftp://ftp.fao.org/docrep/fao/meeting/015/w7324e.pdf>. This was confirmed in the updated report, published in 2010. See COMM'N ON GENETIC RES. FOR FOOD & AGRIC., UNITED NATIONS FOOD & AGRIC. ORG., *THE SECOND REPORT ON THE STATE OF THE WORLD'S PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE 15–16* (2010), available at <http://www.fao.org/docrep/013/i1500e/i1500e.pdf>.

37. *Transformative Potential*, *supra* note 23, ¶ 6.

38. Hans W. Paerl & Valerie J. Paul, *Climate Change: Links to Global Expansion of Harmful Cyanobacteria*, 46 *WATER RES.* 1349, 1350 (2012); Michael F. Chislock et al., *Eutrophication: Causes, Consequences, and Controls in Aquatic Ecosystems*, NATURE EDUCATION KNOWLEDGE PROJECT, <http://www.nature.com/scitable/knowledge/library/eutrophication-causes-consequences-and-controls-in-aquatic-102364466> (last visited Mar. 8, 2014).

croplands and—due to intensified grazing—on pastures.<sup>39</sup> In addition, the production of fertilizers, herbicides, and pesticides; the tillage, irrigation, and fertilization of land; and the transport, packaging, and conservation of food require considerable amounts of energy, resulting in an additional 15 to 17 percent of total man-made greenhouse gas emissions attributable to food systems.<sup>40</sup> The resulting climate changes could seriously constrain the potential productivity of current agricultural methods. For some countries, the changing climate conditions of the past thirty years already appear to have offset a significant portion of the increases in average yields that arose from technology, CO<sub>2</sub> fertilization, and other factors.<sup>41</sup> Under a business-as-usual scenario, we can anticipate an average of 2 percent productivity decline over each of the coming decades, with yield changes in developing countries ranging from -27 percent to +9 percent for the key staple crops.<sup>42</sup> Researchers from the International Food Policy Research Institute estimated that, as a result of climate change, calorie availability would not simply decline relative to a no-climate-change scenario, but would also decline relative to 2000 throughout the developing world: by 2050, the resulting price increases would increase child malnutrition by 20 percent in comparison to what would occur in the absence of climate change, eliminating much of the progress that would otherwise be achieved in reducing malnutrition.<sup>43</sup>

It is also striking that, in the 1950s and 1960s, when the current food systems took their shape, there was little concern about the preservation of natural resources or about the risks of increased competition over resources. Only after the 1972 publication of the report to The Club of Rome on *The Limits to Growth* were policymakers and the general public made aware of the ecological boundaries we were facing.<sup>44</sup> Today,

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39. HIGH-LEVEL PANEL OF EXPERTS ON FOOD SEC. & NUTRITION OF THE COMM. OF WORLD FOOD SEC., FOOD SECURITY AND CLIMATE CHANGE 12–13 (2012) [hereinafter HLPE], available at [http://www.fao.org/fileadmin/user\\_upload/hlpe/hlpe\\_documents/HLPE\\_Reports/HLPE-Report-3-Food\\_security\\_and\\_climate\\_change-June\\_2012.pdf](http://www.fao.org/fileadmin/user_upload/hlpe/hlpe_documents/HLPE_Reports/HLPE-Report-3-Food_security_and_climate_change-June_2012.pdf).

40. *Id.* at 13. This is confirmed by more recent estimates. See Sonja J. Vermeulen et al., *Climate Change and Food Systems*, 37 ANN. REV. ENV'T & RESOURCES 195, 198 (2012).

41. David B. Lobell et al., *Climate Trends and Global Crop Production since 1980*, 333 SCIENCE 616, 619 (2011).

42. See C. NELSON ET AL., INT'L FOOD POLICY RESEARCH INST., CLIMATE CHANGE: IMPACT ON AGRICULTURE AND COSTS OF ADAPTATION 5 (2009), available at <http://www.ifpri.org/sites/default/files/publications/pr21.pdf>; Emma Bryce, *Leaked IPCC Report Links Climate Change to Global Food Scarcity*, THE GUARDIAN (Nov. 7, 2013, 4:27 PM), <http://www.theguardian.com/environment/world-on-a-plate/2013/nov/07/climate-change-environment-food-security-ipcc-emissions-united-nations-global-warming>.

43. *Id.* at 10, 14.

44. See DONELLA H. MEADOWS ET AL., THE LIMITS TO GROWTH: A REPORT FOR THE CLUB OF ROME'S PROJECT ON THE PREDICAMENT OF MANKIND (1972).

however, these limits are well understood, and the diagnosis is widely shared: food systems cannot continue to ignore their dependency on fragile ecosystems and on increasingly scarce resources.

Fish stocks in particular face major threats. Since the 1950s, there has been tremendous growth in fishing capacity worldwide, with the number and power of fishing vessels increasing dramatically. Between 1970 and 1990, fisheries' harvesting capacity in the world grew eight times faster than the rate of growth in landings.<sup>45</sup> Although this trend may have slowed, technological improvements in fishing (including the use of spotter planes, sonar devices, underwater mapping technology, new fishing gears, and improvements in refrigeration and navigation) mean that growth in fishing capacity is bound to continue. Some estimate that because of overcapacity and technology creep, the capacity of the global aggregate fishing fleet is at least double that which is needed to exploit the oceans' sustainably.<sup>46</sup> This is neither ecologically sustainable nor, in fact, economically viable, for we are in effect financing the fishing industry for the over-exploitation of marine resources. A study on the subsidies going to the fishing industry in 2003 found that fuel subsidies accounted for 15 to 30 percent of the total subsidies and that 60 percent went to enhancing capacity.<sup>47</sup>

These direct threats to the sustainability of fish production systems are magnified by the impacts of climate change. The rise in atmospheric CO<sub>2</sub> leads to increased sea temperatures and ocean acidification, threatening many calcifying organisms such as mollusks, plankton, and coral reefs.<sup>48</sup> This reduces dependent fish populations, a factor made worse by unsustainable fishing practices.<sup>49</sup> Warmer sea temperatures may lead to more frequent and severe outbreaks of algae blooms, which can have a devastating impact on fish populations.<sup>50</sup> Extreme climate-related events may destroy coastal habitats. Marine species

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45. Dominique Gréboval & Gordon Munro, *Overcapitalization and Excess Capacity in World Fisheries: Underlying Economics and Methods of Control*, in *MANAGING FISHING CAPACITY: SELECTED PAPERS ON UNDERLYING CONCEPTS AND ISSUES 1* (Dominique Gréboval ed., 1999).

46. Serge M. Garcia & Richard J. R. Grainger, *Gloom and Doom? The Future of Marine Capture Fisheries*, 360 *PHIL. TRANSACTIONS ROYAL SOC'Y* 21, 27 (2005), available at <http://rstb.royalsocietypublishing.org/content/360/1453/21.full.pdf>.

47. U. Rashid Sumaila et al., *A Bottom-Up Re-Estimation of Global Fisheries Subsidies*, 12 *J. BIOECONOMICS* 201 (2010).

48. HLPE, *supra* note 39, at 35.

49. A recent survey of coral reef fisheries, accounting for some 10 percent of global fish production, showed that current fishing practices in 55 percent of countries was unsustainable, and the fishing of coral reef species was roughly 64 percent higher than can be sustained. Katie Newton et al., *Current and Future Sustainability of Island Coral Reef Fisheries*, 17 *CURRENT BIOLOGY* 655, 655 (2007).

50. Chislock et al., *supra* note 38.

respond to the warming of oceans by moving to colder waters, which includes shifting their latitudinal range or moving to greater depths.<sup>51</sup> Some fish will gradually move away from rich tropical waters, resulting in localized extinctions and the invasion of some species into waters where they were not previously found.<sup>52</sup>

Industrial livestock production is also a source of concern.<sup>53</sup> As incomes grow and as the world's population is more urbanized, meat consumption steadily increases. A study commissioned by the FAO in advance of the high-level experts forum on how to feed the world by 2050 estimated that meat output would have to grow by about 200 million tons in comparison to the levels of 2005–07, to reach 470 million tons in 2050.<sup>54</sup> Over one-third of the world's cereals are already being used as animal feed, and following current trends, this may rise further in the next decades.<sup>55</sup> This is entirely unsustainable. Demand for meat diverts food away from poor people who are unable to afford anything but cereals. Concentrated animal feeding operations, in which industrial quantities of meat are produced, have widely reported negative environmental impacts. Continuing to feed cereals to growing numbers of livestock will aggravate poverty and environmental degradation.

Globally, livestock production employs 1.3 billion people and sustains livelihoods for about 1 billion of the world's poor.<sup>56</sup> As a major source of protein intake, meat and dairy production is a potential component in tackling undernourishment, and there are sustainable modes of meat production. Indeed, it is not meat *per se* that is the problem; rather, it is *too much* meat produced through industrial processes that feed animals on grain, use massive doses of antibiotics in feed, and cause huge amounts of pollution. In high-income countries, the net health impacts of meat consumption are turning negative. At current levels, it contributes to chronic diseases including obesity, type 2

51. William W.L. Cheung et al., *Projecting Global Marine Biodiversity Impacts under Climate Change Scenarios*, 10 FISH & FISHERIES 235, 236 (2009).

52. *Id.*

53. For two recent and compelling studies, see THE MEAT CRISIS: DEVELOPING MORE SUSTAINABLE PRODUCTION AND CONSUMPTION (Joyce D'Silva & John Webster eds., 2010), and PHILIP LYMBERY & ISABEL OAKESHOTT, FARMAGEDDON: THE TRUE COST OF CHEAP MEAT (2014).

54. UNITED NATIONS FOOD & AGRIC. ORG., HOW TO FEED THE WORLD IN 2050, at 2, 9 (2009), available at [http://www.fao.org/fileadmin/templates/wsfs/docs/expert\\_paper/How\\_to\\_Feed\\_the\\_World\\_in\\_2050.pdf](http://www.fao.org/fileadmin/templates/wsfs/docs/expert_paper/How_to_Feed_the_World_in_2050.pdf); UNITED NATIONS FOOD & AGRIC. ORG., LIVESTOCK'S LONG SHADOW: ENVIRONMENTAL ISSUES AND OPTIONS, at xx (2006) [hereinafter LIVESTOCK'S LONG SHADOW].

55. LIVESTOCK'S LONG SHADOW, *supra* note 54, at 12.

56. *Id.* at xx.

diabetes, cardiovascular disease, and cancer.<sup>57</sup> Moreover, the industrial model of cereal-fed livestock production and the apparently limitless expansion of pastures are creating problems of a magnitude that must be addressed urgently.<sup>58</sup> In 2006, the FAO estimated that grazing occupied an area equivalent to 26 percent of the ice-free terrestrial surface of the planet, while 33 percent of total arable land was dedicated to feed-crop production—maize and soybeans in particular.<sup>59</sup> Thus, livestock production accounted for 70 percent of all agricultural land and 30 percent of the land surface of the planet,<sup>60</sup> and the expansion of pastures and feed crops is a major source of deforestation—especially in Latin America. The FAO study estimated that the livestock sector was responsible for 18 percent of greenhouse gas emissions measured in CO<sub>2</sub> equivalent, a larger share than transportation.<sup>61</sup> More recent research has shown that once livestock respiration is included, and once the loss of greenhouse gas (GHG) reductions from photosynthesis that are foregone by using large areas of land for grazing or feed crops is taken into account, livestock is found to be responsible for 51 percent of anthropogenic GHG emissions, so that a 25 percent reduction in livestock products worldwide between 2009 and 2017 could result in a 12.5 percent reduction in global atmospheric GHG emissions.<sup>62</sup> Though the precise figures remain debated,<sup>63</sup> there is no doubt in the scientific community that the impacts of livestock production are massive.

Finally, because global food systems have been shaped to maximize efficiency gains and produce large volumes of commodities, they have failed to take distributional concerns into account. The increases in production have far outstripped population growth during the period

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57. See Arnold Tukker et al., *Environmental Impacts of Changes to Healthier Diets in Europe*, 70 *ECOLOGICAL ECON.* 1776–78 (2011).

58. I am grateful to students from the Columbia Environmental Law Clinic for having shared their research supporting this part of the argument (Brief on file with the author).

59. LIVESTOCK'S LONG SHADOW, *supra* note 54, at xxi.

60. *Id.*

61. *Id.*

62. Robert Goodland & Jeff Anhang, *Livestock and Climate Change: What if the Key Actors in Climate Change Are . . . Cows, Pigs, and Chickens?*, *WORLD WATCH*, Nov.–Dec. 2009, at 10 (measuring the warming potential of methane (CH<sub>4</sub>) based on its 20-year global warming potential (GWP) rather than the 100-year GWP used by the FAO study).

63. See M. Herrero et al., *Livestock and Greenhouse Gas Emissions: The Importance of Getting the Numbers Right*, 166–67 *ANIMAL FEED SCI. TECH.* 779 (2011); Robert Goodland & Jeff Anhang, *Comment to the Editor*, 172 *ANIMAL FEED SCI. TECH.* 252 (2012) (responding to Herrero et al. *supra*).

1960–2000.<sup>64</sup> But these increases went hand-in-hand with regional specialization in a relatively narrow range of products, a process encouraged by the growth of international trade in agriculture. And because of the associated technological and policy choices, the benefits were concentrated in the hands of large production units and landholders at the expense of smaller-scale producers and landless workers. This resulted in the growth of inequality in rural areas and a failure to address the root causes of poverty. The shift to monocultures rewarded economies of scale and allowed for mechanization, thus improving labor productivity. However, it also gave a premium to the largest landholders who were better positioned to achieve efficiency gains under this model. And, because it was associated with the adoption of commercial, “improved” seed varieties, the new model of agricultural production reduced the genetic diversity of cultivated plants, leading to a greater variability of yields: this particularly affected small-scale farmers, who are less equipped to deal with sudden losses.<sup>65</sup>

Of course, different regions followed different development patterns, and there were important evolutions throughout the period.

The 1960s and 1970s were characterized by a State-led type of agricultural development, under which governments, eager to provide urban populations with affordable food or to export raw commodities in order to finance import substitution policies, either paid farmers very low prices for the crops produced or supported only the largest producers who could be competitive on global markets, thus accelerating rural migration. In the 1980s, the introduction in most low-income countries of structural adjustment policies resulted in a retreat of the State from agricultural development [in most low-income countries]. It was anticipated that trade liberalization and the removal of price controls would encourage private investment, making up for the reduction of

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64. UNITED NATIONS FOOD & AGRIC. ORG., WORLD AGRICULTURE: TOWARDS 2015/2030: SUMMARY REPORT 11 (2002).

65. There exists a correlation between the switch to specialized and uniform varieties on the one hand and increased variability in productivity on the other hand. See Donald N. Duvick, *Possible Genetic Causes of Increased Variability in U.S. Maize Yields*, in VARIABILITY IN GRAIN YIELDS 147 (Joek R. Anderson & Peter B.R. Hazell eds., 1989); Peter B.R. Hazell, *Sources of Increased Instability in Indian and U.S. Cereal Production*, 66 AM. J. AGRIC. ECON. 302 (1984); Peter B.R. Hazell, *Sources of Increased Variability in World Cereal Production since the 1960s*, 36 J. AGRIC. ECON. 145 (1985) (finding that the increase in aggregate production variability is predominantly due to increased yield variability and to a simultaneous loss in offsetting patterns of variation in yields between crops and regions, changes associated with the more widespread adoption of improved seed- and fertilizer-intensive technologies).

State support. Overproduction in the highly subsidized farming sectors of rich countries put downward pressure on agricultural prices, however, discouraging the entry of private investors into agriculture in developing countries. If there was private investment at all, it went to a narrow range of cash crops grown for export markets.<sup>66</sup>

The consequences are well known.<sup>67</sup> Because small-scale farming was not viable under these conditions, many rural households were relegated to subsistence farming and survived only by diversifying their incomes. Others migrated to the cities as part of a rural exodus that accounted for at least half of all urban growth in Africa during the 1960s and 1970s and about 25 percent of urban growth in the 1980s and 1990s.<sup>68</sup> At the same time, the low-income countries' dependence on food imports grew significantly. Many of the Least Developed Countries (LDCs) are still primarily agricultural, yet—in part because they have to repay their foreign loans in hard currency—they export a narrow range of commodities and therefore find themselves highly vulnerable to price shocks on international markets for these products.<sup>69</sup> Their food bills have soared as a result of population growth and a lack of investment in local agricultural production and food processing to meet local needs.<sup>70</sup> When the prices of agricultural products suddenly increased in 2008, in the wake of higher oil prices and speculation, LDCs found themselves trapped. The imbalances of the food system, which had been building up

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66. *Transformative Potential*, *supra* note 23, ¶ 10. For assessments, see BEYOND ECONOMIC LIBERALIZATION IN AFRICA: STRUCTURAL ADJUSTMENTS AND THE ALTERNATIVES (Kidane Mengisteb & B. Ikubolajeh Logan eds., 1995); THE IMPACT OF STRUCTURAL ADJUSTMENT ON THE POPULATION OF AFRICA (Aderanti Adepoju ed., 1993); STRUCTURAL ADJUSTMENT & AGRICULTURE: THEORY & PRACTICE IN AFRICA & LATIN AMERICA (Simon Commander ed., 1989); Jane Harrigan & Paul Mosley, *Evaluating the Impact of World Bank Structural Adjustment Lending: 1980–87*, 27 J. DEV. STUD. 63 (1991); Howard Stein, *World Bank Agricultural Policies, Poverty and Income Inequality in Sub-Saharan Africa*, 4 CAMBRIDGE J. REGIONS, ECON. & SOC'Y 79 (2010). The price and market liberalization followed prescriptions of the World Bank. *See, e.g.*, WORLD BANK, SUB-SAHARAN AFRICA: FROM CRISIS TO SUSTAINABLE GROWTH 91, 96 (1989) (noting that flexible prices will incentivize farmers to follow the signals of the market and switch to crops for which there is a demand and which will fetch higher prices and advocating the removal of subsidies on inputs, which 'only encourages waste').

67. The following paragraphs are borrowed, with slight modifications, from the report *Transformative Potential*, *supra* note 23, ¶¶ 11–12.

68. The major study on rural-urban migration is KEITH GRIFFIN, *THE POLITICAL ECONOMY OF AGRARIAN CHANGE: AN ESSAY ON THE GREEN REVOLUTION* (1974).

69. U.N. CONFERENCE ON TRADE & DEV., *THE LEAST DEVELOPED COUNTRIES REPORT 2010: TOWARDS A NEW INTERNATIONAL DEVELOPMENT ARCHITECTURE FOR LDCs*, at IV, 8, U.N. Doc. UNCTAD/LDC/2010, U.N. Sales No. E.10.II.D.5 (2010).

70. *Id.*

over the past forty years, suddenly became visible—and the human consequences are too important to ignore.<sup>71</sup>

Indeed, not only had the trap closed on net-food-importing developing countries (NFIDCs), but for many, a vicious cycle had developed. As they were confronted from the 1960s to the 1990s with strong population growth and rural-to-urban migration, many governments had no choice but to depend more on food aid or to import more food products, thus making it even more difficult for their own farmers—increasingly facing dumping of heavily subsidized foodstuffs on their own domestic markets—to make a decent living from farming. In effect, the import of low-priced food products functioned as a substitute for improved wages for workers in the non-agricultural sectors and for the establishment of social protection floors for all. This was perhaps a convenient solution so long as the prices of basic food commodities remained stable or were declining. However, with higher and increasingly volatile prices, this has now become a recipe for social and political instability. Furthermore, the increased reliance on food imports also appears to be a major cause of “nutrition transition” in the developing world, by which nutritionists mean the shift to processed foods richer in salt, sugar, and saturated fats—foods with a long shelf life and attractive to the urban populations and the younger generations, but often less nutritious and less healthy.<sup>72</sup>

## II. THE OBSTACLES TO REFORM

### *A. A Shared Diagnosis on the Need for Reform*

There is broad agreement on the diagnosis summarized above. Indeed, this diagnosis explains the major efforts to reinvest in the agricultural sector in low-income countries since 2008 and the shape of the reactions to the global food price crisis. In contrast to past approaches that emphasized the expansion of volumes of agricultural commodities to be produced for the benefit of the food-processing industry and that addressed hunger and malnutrition in developing countries by a combination of subsidized exports and food aid, the focus shifted then in three directions.

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71. See, e.g., Special Rapporteur on the Right to Food, *Building Resilience: A Human Rights Framework for World Food and Nutrition Security*, Hum. Rts. Council, ¶¶ 2–5, U.N. Doc. A/HRC/9/23 (Sept. 8, 2008) (by Olivier De Schutter); Special Rapporteur on the Right to Food, *Crisis into Opportunity: Reinforcing Multilateralism*, Hum. Rts. Council, ¶¶ 1, 3, U.N. Doc. A/HRC/12/31 (Jul. 21, 2009) (by Olivier De Schutter).

72. See *supra* notes 32–34 and accompanying text.

First, there was an insistence on strengthening the ability of poor countries to feed themselves. Thus, in the *L'Aquila Joint Statement on Food Security*, which the G-8 governments adopted in July 2009 to introduce the L'Aquila Food Security Initiative, they pledged to support “country-owned strategies, in particular to increase food production, improve access to food and empower smallholder farmers to gain access to enhanced inputs, technologies, credit and markets.”<sup>73</sup> This commitment was echoed later that year in the first of the five principles adopted at the World Summit on Food Security.<sup>74</sup>

Second, there was a recognition of the need to design agricultural policies that would support the incomes of small-scale farmers to ensure that these policies would contribute to rural development and to the reduction of rural poverty. The *L'Aquila Statement* acknowledged that “special focus must be devoted to smallholder and women farmers and their access to land, financial services, including microfinance and markets.”<sup>75</sup> Again confirming this, the Final Declaration adopted at the World Summit on Food Security refers to the need to support “medium and long-term sustainable agricultural, food security, nutrition and rural development programmes to eliminate the root causes of hunger and poverty, including through the progressive realization of the right to adequate food,”<sup>76</sup> in particular by “building capacity, focusing on integrated actions addressing policy, institutions and people, with a special emphasis on smallholders and women farmers.”<sup>77</sup>

Third, a new emphasis was put on nutrition. Indeed, at the same time that the global food price crisis unfolded, new research appeared demonstrating the considerable importance of focusing on the nutrition

73. L'AQUILA FOOD SEC. INITIATIVE (AFSI), “L'AQUILA” JOINT STATEMENT ON GLOBAL FOOD SECURITY ¶ 12 (2009) [hereinafter L'AQUILA JOINT STATEMENT], available at [http://www.g8italia2009.it/static/G8\\_Allegato/LAquila\\_Joint\\_Statement\\_on\\_Global\\_Food\\_Security%5B1%5D,0.pdf](http://www.g8italia2009.it/static/G8_Allegato/LAquila_Joint_Statement_on_Global_Food_Security%5B1%5D,0.pdf). The L'Aquila Food Security Initiative committed to invest at least \$22 billion by 2012 in support of country-owned plans for agriculture. L'AQUILA FOOD SEC. INITIATIVE (AFSI), 2012 REPORT 1 (2012), available at <http://www.state.gov/s/globalfoodsecurity/rls/rpt/laquila/202837.htm>. By December 2012, according to the final report released at the second L'Aquila meeting held in Maputo, AFSI donors collectively had met their commitment to mobilize the amount pledged, although the funds were yet to be totally disbursed. *Id.* at 6.

74. The World Summit on Food Security convened in Rome on Nov. 16–18, 2009, and adopted the “Five Rome Principles on Sustainable Global Food Security.” World Summit on Food Security, Rome, It., Nov. 16–18, 2009, *Declaration of the World Summit on Food Security*, at 2, WSFS/2009/02 (Nov. 2009), available at <http://www.fao.org/wsfs/wsfs-list-documents/en/>. Under Principle 1, governments pledged to “Invest in country-owned plans, aimed at channelling resources to well-designed and results-based programmes and partnerships.” *Id.*

75. L'AQUILA JOINT STATEMENT, *supra* note 73, ¶ 10.

76. World Summit on Food Security, *supra* note 74, at 3.

77. *Id.* at 4.

of the child during pregnancy and until the second birthday, during what is called the “1,000 days” window of opportunity.<sup>78</sup> Maternal and child undernutrition, that research showed, was directly related to outcomes in later life: the height of adults, but also the learning performance of children. Thus their incomes as adults—as well as their height—depend on the quality of their nutrition as young infants during the 1,000 days window.<sup>79</sup>

Important as these shifts in differently framing the questions of hunger and malnutrition were, they were not as such sufficient to overcome the range of obstacles that food system reforms face. Some of these obstacles concern issues of governance in developing countries, related especially to the challenges raised by the renewed interest of the private sector in agriculture. After 2007–08 especially, public budgets dedicated to agriculture increased significantly in many low-income countries—encouraged for instance by the Comprehensive Africa Agriculture Development Programme (CAADP) under the New Partnership for Africa’s Development (NEPAD)—and new initiatives, such as Scaling Up Nutrition, bloomed. At the same time, it has not always been easy to ensure that private investment would be effectively channeled towards the implementation of policies aimed at the reduction of rural poverty. Private investment in agriculture grew massively after 2005–07, when the first signs of price increases on agricultural markets were visible.<sup>80</sup> That investment largely went to large-scale, agro-industrial plantations, raising the concern that they would undermine the rights of land users depending on access to land for their

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78. Robert E. Black et al., *Maternal and Child Nutrition: Building Momentum for Impact*, 382 LANCET 367, 372 (2013), [http://www.thelancet.com/journals/lancet/issue/vol382no9890/PIIS0140-6736\(13\)X6037-4](http://www.thelancet.com/journals/lancet/issue/vol382no9890/PIIS0140-6736(13)X6037-4).

79. The finding, *per se*, was not entirely new in 2008. See, e.g., A. Ashworth, *Effects of Intrauterine Growth Retardation on Mortality and Morbidity in Infants and Young Children*, 52 EUR. J. CLINICAL NUTRITION S34, S34 (1998). But it is the *Lancet* series on the long-term impacts of child malnutrition that really put the question on the mental map of policy makers: See Victora et al., *supra* note 20. The researchers who conducted these studies found that “height-for-age at 2 years was the best predictor of human capital and that undernutrition is associated with lower human capital,” and they concluded “that damage suffered in early life leads to permanent impairment, and might also affect future generations. Its prevention will probably bring about important health, educational, and economic benefits. Chronic diseases are especially common in undernourished children who experience rapid weight gain after infancy.” *Id.* at 340.

80. Until 2005–07, investment in agricultural production remained negligible as a share of total inward foreign direct investment in developing countries. See U.N. CONFERENCE ON TRADE & DEV., WORLD INVESTMENT REPORT 2009: TRANSNATIONAL CORPORATIONS, AGRICULTURAL PRODUCTION AND DEVELOPMENT, at 111, U.N. Sales No. E.09.II.D.15 (2009). It then began to rise significantly: according to the U.N. Conference on Trade and Development, it increased from below an average of \$1 billion annually in 1989–91 to an average of \$3 billion in 2005–07. *Id.*

livelihoods and testing the ability of governments in the countries targeted to effectively ensure that private investors' choices would be aligned with the national food security strategies.<sup>81</sup>

While this first obstacle to the transition towards improved nutrition has been the focus of concern for a range of civil society organizations,<sup>82</sup> another obstacle has been less frequently noticed. It stems from the interdependence of reforms in rich and poor countries respectively. Considerable efforts went into improving the situation in low-income countries, but this was not matched by corresponding reforms in industrialized countries. Yet, the ability for low-income countries to feed themselves depends on changes in the food systems in middle- and high-income countries. Moreover, there are obstacles specific to reform in rich countries. The following two Subparts explore the nature of these challenges.

### *B. The Interdependence of Reforms*

Little progress will be made towards the strengthening of food systems in NFIDCs unless rich countries amend the policies, still based on the productivist approaches of the past, in which their own systems are locked. There are two reasons for this.

First, a number of poor countries that previously were self-sufficient in food had become net food importing in the 1980s, and they were highly dependent on food imports by the mid-2000s.<sup>83</sup> The immediate

81. See Olivier De Schutter, *The Green Rush: The Race for Farmland and the Rights of Land Users*, 52 HARV. INT'L L.J., 503, 503–59 (2011).

82. BREAD FOR THE WORLD ET AL., RIGHT TO FOOD AND NUTRITION WATCH 2013: ALTERNATIVES AND RESISTANCE TO POLICIES THAT GENERATE HUNGER (2013) (collecting a range of contributions noting the dangers of the capture by the private sector of the food security agenda).

83. See Statement Circulated by H.E. Hartwig de Haen, Assistant Dir.-Gen., Food & Agric. Org., World Trade Organization, Ministerial Conference, Cancun, Mex., Sept. 10–14, 2003, WT/MIN(03)/ST/61 (Sept. 11, 2003), available at [http://www.wto.org/english/thewto\\_e/minist\\_e/min03\\_e/statements\\_e/st61.pdf](http://www.wto.org/english/thewto_e/minist_e/min03_e/statements_e/st61.pdf). The FAO also noted that

[o]ver the last two decades the share of Least-Developed Countries and Net Food Importing Developing Countries (NFIDCs) in global agricultural exports has declined and their share in global food imports has increased. LDCs moved from net agricultural export surpluses of US\$1-2 billion in the late 1970s to net deficits of US\$4.4 billion in 1999. NFIDCs similarly moved from surpluses of US\$2-3 billion in the late 1970s to deficits[sic] of more than US\$4 billion in the late 1990s.

*Id.* at 1–2. The cereal import bill for Low Income Food Deficit Countries peaked at over \$38 billion in 2007–08. *Low-Income Food-Deficit Countries Food Situation Overview*, CROP PROSPECTS & FOOD SITUATION, no. 2, April 2009 at 11, 12, available at <http://www.fao.org/docrep/011/ai481e/ai481e05.htm>. See also U.N. Comm'n on

causes for this were demographic growth and the lack of investment in agriculture, except for some cash crops that could earn hard currencies and thus allow the countries concerned to pay back their foreign debt.<sup>84</sup> As noted by a senior official from the FAO, it also had to do with policies encouraging overproduction in rich countries:

Up until 2006, the real cost of the global food basket had fallen by almost one-half in the previous 30 years, with prices of many foodstuffs falling on average by 2–3 percent per year in real terms. Technological advances greatly reduced the cost of producing foodstuffs and this, together with widespread subsidies in countries of the Organisation for Economic Cooperation and Development (OECD) that rendered more efficient and cheaper production elsewhere unprofitable, entrenched the role of a few countries in supplying the world with food. This supply-driven agricultural paradigm sent real prices spiralling downward on a trend lasting for decades.<sup>85</sup>

Many low-income countries are agriculture based and have economies grounded in raw commodity exports. They have neglected to invest in local production and food processing to feed their own communities, and private investors showed no interest in this sector.<sup>86</sup> This addiction to cheap food imports and the resulting lack of investment in food production to satisfy local needs was encouraged by massive overproduction in better-off exporting countries, stimulated by subsidies

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Sustainable Dev., Rep. on the 17th Sess., May 16, 2008 & May 4–15, 2009, ¶ 148, U.N. Doc. E/CN.17/2009/19, Supp. No. 9 (2009).

84. WORLD BANK, AGRICULTURE FOR DEVELOPMENT: WORLD DEVELOPMENT REPORT 2008, at 122 (2007) (noting the importance to low-income countries of maintaining international competitiveness in bulk agricultural commodity exports “because exports of coffee, cocoa, tea, cotton, and other bulk commodities are their main source of foreign exchange. For Benin, Burkina Faso, Burundi, and Mali, one such commodity accounts for more than half of the value of total exports”).

85. UNITED NATIONS FOOD & AGRIC. ORG., THE STATE OF AGRICULTURAL COMMODITY MARKETS: 2009, at 12 (2009), available at <ftp://ftp.fao.org/docrep/fao/012/i0854e/i0854e.pdf>.

86. As noted by Hafez Ghanem, at the time an Assistant Director-General of the FAO:

Because global production levels are technically sufficient and because world food prices have long been low and stable, investment in agriculture has been steadily declining since the 1970s. As a result, the rate of growth of agricultural capital stock (ACS) in the world fell from 1.1 percent in 1975–1990 to 0.50 percent in 1991–2007.

Hafez Ghanem, *World Food Security and Investment in Agriculture*, CARNEGIE ENDOWMENT FOR INT’L PEACE (Sept. 17, 2009), <http://carnegieendowment.org/2009/09/17/world-food-security-and-investment-in-agriculture/12q>.

going to the largest agricultural producers in these countries, and ensured access to cheap inputs for the food processing industry. It was further facilitated by the growth of international trade and investment and the corresponding increase of the role of large agribusiness corporations in the food systems. Because the rebuilding of local food systems in developing countries is vital for expanding opportunities for small-scale food producers and, at the same time, for improving access to fresh and nutritious food for all, it therefore depends on the reform of food systems in rich countries.

Food system reforms in developing countries are connected to and depend on reforms in rich countries for another reason. With the expansion of international trade and investment, the resources of developing countries are increasingly used to satisfy demand for raw commodities in rich countries. This pits the interests of consumers in countries with a vastly higher purchasing power against those of rural populations in the global South, which, except for a minority, shall not benefit from higher volumes of exports. The considerable amount of land going to grow soybeans, wheat, rye, oats, and maize to feed animals abroad illustrates this: the “soy empires” that are emerging in Brazil and Argentina, for instance, may represent a major source of export revenue for these countries, as they largely serve to feed animals in the European Union, but they also lead to agrarian concentration and operating at the expense of local small farms.<sup>87</sup>

Consider an example that has gained prominence more recently: the expansion of the market for liquid biofuels for transport. Mandates for the consumption of biofuels in transport fuels in the United States and in the European Union and support for the production of biofuels in the form of subsidies have significantly increased demand for agricultural commodities over the past ten years.<sup>88</sup> This represented a major source of price volatility on agricultural markets and was one of the most important factors explaining the global food price crisis of 2008,<sup>89</sup> both because of the direct impact of increased demand for agricultural

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87. It has been calculated that, in order to feed animals in the EU, more than 16 million hectares of land were used to grow soybean outside the EU, a concept sometimes referred to “virtual trade in land.” See HEINRICH BÖLL STIFTUNG, FRIENDS OF THE EARTH EUR., *MEAT ATLAS: FACTS AND FIGURES ABOUT THE ANIMALS WE EAT* 30–31 (2014). On the competition for resources that the growth in demand for meat leads to, see Ramona Cristina Ilea, *Intensive Livestock Farming: Global Trends, Increased Environmental Concerns, and Ethical Solutions*, 22 J. AGRIC. & ENVTL. ETHICS 153, 157 (2009).

88. David Zilberman et. al, *The Impact of Biofuels on Commodity Food Prices: Assessment of Findings*, 95 AM. J. AGRIC. ECON. 275, (2013), available at <http://ajae.oxfordjournals.org/content/early/2012/06/07/ajae.aas037.full.pdf>.

89. Rosamond Naylor & Walter P. Falcon, *Food Security in an Era of Economic Volatility*, 36 POPULATION & DEV. REV. 693, 698–700 (2010).

commodities on food prices<sup>90</sup> and because these policies have strengthened the links between the food and energy markets. The conversion of food crops (such as corn, oilseeds, or sugar) for ethanol or biodiesel represents an economic opportunity—especially where the prices of oil are high, which in itself already impacts food prices. In addition, the push for biofuels has also exacerbated pressures on natural resources, as the production of energy crops competes for land and water with other uses—including the production of food, feed, and fiber; environmental conservation and carbon sequestration; and urbanization or industrial projects.<sup>91</sup>

Consider, finally, the question of waste in the food systems. A 2011 study prepared at the request of the FAO estimates that 1.3 billion tons of food produced for human consumption—about one-third of the total—is lost or wasted.<sup>92</sup> In low-income countries, losses occur as a result of inadequate storage, packaging, and processing facilities, and a poor connection of farmers to markets, resulting in economic losses for food producers. In rich countries, by contrast, waste is primarily concentrated at the levels of the processing industry, the retail sector, and within households: the levels of waste per capita of households are much higher than in developing countries.<sup>93</sup>

These issues—industrial livestock production, liquid biofuels for transport, and waste—present the international community with specific challenges that result from globalized markets connecting populations with widely diverging purchasing powers in the context of finite resources.<sup>94</sup> The reason that large areas of farmland can be dedicated to producing feedstock to satisfy the meat overconsumption in affluent societies or to fuel their cars, is because consumers in rich countries can

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90. Foresight studies have suggested that if current mandates are implemented, the price of cereals and other crops could be 35 percent higher by 2030 than under a reference scenario where biofuels consumption remains constant at 2008 levels, with an estimated 136 million more people at risk of hunger. See Günther Fischer, Food & Agric. Org., *How Can Climate Change and the Development of Bioenergy Alter the Long-term Outlook for Food and Agriculture?*, in LOOKING AHEAD IN WORLD FOOD AND AGRICULTURE: PERSPECTIVES TO 2050, at 95, 128–29, 133–35 (2011).

91. A range of studies has documented the increased pressure on land resulting from biofuels policies. See, e.g., LORENZO COTULA ET AL., UNITED NATIONS FOOD & AGRIC. ORG., INT’L INST. FOR ENV’T & DEV., *FUELLING EXCLUSION? THE BIOFUELS BOOM AND POOR PEOPLE’S ACCESS TO LAND* (2008); PROSPER B. MATONDI ET AL., *BIOFUELS, LAND GRABBING AND FOOD SECURITY IN AFRICA* (2011).

92. JENNY GUSTAVSSON ET AL., SWEDISH INST. FOR FOOD & BIOTECHNOLOGY (SIK), UNITED NATIONS FOOD & AGRIC. ORG., *GLOBAL FOOD LOSSES AND FOOD WASTE: EXTENT, CAUSES, AND PREVENTION* (2011).

93. While consumers in Europe and North America waste 95–115 kg/year, this figure is only 6–11 kg/year in Sub-Saharan Africa and South/Southeast Asia. *Id.*

94. This paragraph is borrowed, with slight modifications, from the report *Transformative Potential*, *supra* note 23, ¶ 23.

command the resources that will allow their lifestyles to continue unchallenged. Similarly, the huge amounts of retail and consumer waste in rich countries correlates with the fact that, as incomes have grown, the proportion of the household budget spent on food has diminished. This highlights the limits of the reasoning according to which the expansion of trade in agricultural commodities leads to efficiency gains by encouraging a division of labor according to comparative advantage. In fact, the expansion of trade also has resulted in the luxury tastes of the richest parts of the world being allowed to compete against the satisfaction of the basic needs of the poor.<sup>95</sup> Ultimately, this represents a highly worrying competition for the natural resources needed for food production, particularly land. While it is true that a purely Malthusian view of land as finite oversimplifies the issue of competition for scarce resources—as the productivity of land can be increased to a certain extent and as some land can still be brought into production—recent research has highlighted the considerable social and ecological costs of doing so.<sup>96</sup> This research shows that once these tradeoffs are taken into account, there is significantly less cropland available for future expansion than has been traditionally assumed in most scenarios.<sup>97</sup>

There are therefore strong reasons to believe that, if the situation of hunger and malnutrition is to improve in the global South, it can only be through reforms in rich countries. OECD countries need to gradually move away from export-led agriculture that encourages the production of commodities for the food processing industry, as has been done under the productivist paradigm inherited from the twentieth century. They must focus instead on producing food that is nutritious and supports not just plenty but also well-being. And they must encourage sustainable consumption—less meat, less diversion of crops and land to ethanol and biodiesel production, and less waste. Unless such reforms are implemented, NFIDCs will continue to produce raw agricultural materials to satisfy our needs and import ever larger volumes of food produced in rich countries to feed themselves—thus making it impossible for their own food systems to be reshaped to meet their local demand and perpetuating their vulnerability to price shocks on international markets. Moving in this direction will be difficult, however, unless we address the questions of political economy in the food systems.

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95. See generally Eric Lambin & Patrick Meyfroidt, *Global Land Use Change, Economic Globalization, and the Looming Land Scarcity*, 108 PROC. NAT'L ACAD. SCI. 3465 (2011).

96. *Transformative Potential*, *supra* note 23, ¶¶ 11, 23.

97. E.F. Lambin et al., *Estimating the World's Potentially Available Cropland Using a Bottom-up Approach*, 23 GLOBAL ENVTL. CHANGE 892, 899 (2013); Eric Lambin, *Global Land Availability: Malthus versus Ricardo*, 1 GLOBAL FOOD SECURITY 83, 83–87 (2012).

*C. The Political Economy of Food Systems as an Obstacle to Transition*

First, as in all situations of addiction, the short term is the enemy of the long term. While it may be desirable in the long run for countries to focus more efforts towards building local food systems and redesigning their agricultural policies to favor the production of food for local consumption rather than commodities for global supply chains dominated by the largest agribusiness corporations, in the short run, it will always be easier to stick to the status quo. Indeed, desirable as they may be, the reforms outlined for OECD countries neither could, nor should, happen all of a sudden. If the subsidies to the production of foodstuffs these countries export on the global markets were immediately lowered, it would wreak havoc on the local markets of many low-income countries—whose urban populations in particular have developed a dependence on imported foods—and it would very likely result in social and political instability. This does not mean that the reforms are not urgent, indeed they are. But it does mean that NFDCs should implement these reforms gradually and should carefully time them to be paired with a strong reinvestment in their own agricultural sector to allow them to meet a larger proportion of their food needs while reducing their dependency on imports.

Second, the mainstream food system is inert and very difficult to displace. Its various elements have coevolved over the years, shaped by the productivist paradigm that has dominated the design of food and agricultural policies, especially since the 1960s.<sup>98</sup> The farming sector has become highly dependent on agricultural subsidies that have favored the production of commodities—corn, soybeans, and wheat in particular—rather than food, and it has come to rely on cheap fuel for its highly mechanized and input-intensive mode of production. Even without taking into account the subsidies to fossil fuel consumption by

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98. The notion of “coevolution” refers to the fact that different sub-systems mutually influence each other’s development, thereby becoming mutually supportive because adapted to one other and blocking transformative change. See John Grin et al., *Introduction: From Persistent Problems to System Innovations and Transitions*, in TRANSITIONS TO SUSTAINABLE DEVELOPMENT: NEW DIRECTIONS IN THE STUDY OF LONG TERM TRANSFORMATIVE CHANGE 4 (2010); Gert Spaargaren, Peter Oosterveer & Anne Loeber, *Sustainability Transitions in Food Consumption, Retail and Production*, in FOOD PRACTICES IN TRANSITION: CHANGING FOOD CONSUMPTION, RETAIL AND PRODUCTION IN THE AGE OF REFLEXIVE MODERNITY 1, 11 (Gert Spaargaren, Peter Oosterveer & Anne Loeber eds., 2012); Richard R. Nelson, *The Co-evolution of Industry Structure, Technology and Supporting Institutions, and the Making of Comparative Advantage*, 3 INDUS. & CORP. CHANGE, 47, 47–63 (1994); Carlota Perez, *Structural Change and the Assimilation of New Technologies in the Economic and Social System*, 15 FUTURES 357–75 (1983); Elizabeth Shove & Gordon Walker, *CAUTION! Transitions Ahead: Politics, Practice and Sustainable Transition Management*, 39 ENV’T & PLAN. A, 763, 763–64, 767 (2007).

agricultural producers, OECD countries subsidized their farming sector by \$259 billion in 2012.<sup>99</sup> This has encouraged the expansion of the food processing industry, thanks to the availability of cheap inputs and the deployment of infrastructure—in the form of silos and processing plants—that have been shaped by and for the agro-industry. Large agribusiness corporations have come to dominate increasingly globalized markets thanks to their ability to achieve economies of scale and because of various network effects. In the process, smaller food producers have been increasingly marginalized because, although they can be highly productive per hectare of land and highly resource efficient if provided with adequate support,<sup>100</sup> they are less competitive under prevalent market conditions. The dominant position of the larger agribusiness corporations is such that these actors have acquired, in effect, a veto power in the political system. Finally, the habits of consumers themselves have changed: in high-income countries, the consumption of highly processed, high-energy (though nutrient-poor) foods has increased year after year, becoming an accepted, unquestioned part of modern life.

As we have seen, these developments have come at a high ecological cost. Due to the links between agriculture, diets, and health, they also impose a considerable burden on health-care systems. In many high-income countries, they have led to the depopulation of rural areas. And they result in a major obstacle to change in developing countries themselves, as these countries have been accustomed to think of reliance on cheap food dumped on international markets by OECD producers as a viable and risk-free strategy. Yet, because these different components of the food systems shaped during the past half century have strengthened one another, they seem to be blocking any real transformative possibilities.

### III. THE WAY FORWARD

Nevertheless, change can be achieved. Actions could be launched at three levels to democratize food security policies and ensure that, in the

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99. This is the “Producer Support Estimate” calculated by the OECD. *OECD Stat Extracts: Estimate of Support to Agriculture*, ORG. FOR ECON. CO-OPERATION & DEV., <http://stats.oecd.org/Index.aspx?QueryId=50476> (last visited Jan. 24, 2014).

100. The inverse relationship between the size of the farm and its productivity per surface was initially highlighted by Amartya K. Sen in the 1960s, Amartya Kumar Sen, *An Aspect of Indian Agriculture*, 14 *ECON. WEEKLY* 243, 243–46 (1962); Amartya Kumar Sen, *Peasants and Dualism with or without Surplus Labor*, 74 *J. POL. ECON.* 425, 441–42 (1966), and confirmed by a large body of evidence since. See, e.g., Calogero Carletto, Sara Savastano & Alberto Zezza, *Fact or Artefact: The Impact of Measurement Errors on the Farm-Size Productivity Relationship* (World Bank, Policy Research Working Paper No. 5908, 2011).

future, they achieve better than delivering large volumes of cheap calories to the food processing industry. At the local level, the key to transition is to rebuild local food systems by creating links between the cities and their rural hinterlands for the benefit of both local producers and consumers. At the national level, in addition to support for locally led innovations, multi-sectoral strategies should be deployed. Such strategies should trigger a process in which progress is made towards supporting a reinvestment in local food production, focused in particular on small-scale food producers in the countries where they represent a large proportion of the poor; towards the diversification of the economy, to create opportunities for income-generating activities; and towards the establishment of standing social protection schemes, to ensure that all individuals have access to nutritious food at all times—even if they have access neither to productive resources nor to employment. At the international level, greater coordination should be achieved between actions launched at multilateral, regional, and national levels with a view to creating an enabling international environment—rewarding and supporting domestic efforts towards the realization of the right to food rather than discouraging them. At each of these levels, the right to adequate food has a key role to play to guide the efforts of all actors, to ensure participation of those affected by hunger and malnutrition, and to establish appropriate accountability mechanisms.

#### *A. Rebuilding Local Food Systems*

The modernization of food supply chains and the implementation of agricultural policies focused more on the production of commodities than on food have led to the marginalization of local food systems over recent years. This trend must be reversed. Small-scale food producers must be provided with greater opportunities to sell on the local markets that they can more easily supply without having to be dependent on large buyers. And the poorest consumers, who now often rely on large retailers or fast-food outlets to feed themselves, must have the possibility to purchase food that is fresh and nutritious and therefore healthier. These include the urban poor; but, in developing countries, they also include many small-scale farmers, who often are net food buyers and combine other activities with their role as food producers.<sup>101</sup> Local food systems can be rebuilt through appropriate investments in infrastructure, through

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101. See WORLD BANK, WORLD DEVELOPMENT REPORT 2008: AGRICULTURE FOR DEVELOPMENT 109 (2007) (showing that in countries such as Bolivia (based on 2002 data), Ethiopia (2000), Bangladesh (2001), Zambia (1998) and Vietnam (1998), the proportion of smallholders who are net food buyers is larger than the proportion who are net sellers).

investments in packaging and processing facilities, and by allowing smallholders to organize themselves in ways that yield economies of scale and allow them to move towards higher-value activities in the food supply chain. This would support rural development and the reduction of rural poverty, and it would slow the rural-to-urban migration.

It would also improve the resilience of cities. By 2050, when the world population will have reached 9.3 billion, about 6.3 billion of these inhabitants, or more than two in three, will be urban given the current rates of rural-to-urban migration.<sup>102</sup> Under a business-as-usual scenario, the rural population is expected to decline globally after 2020: there will be 300 million fewer rural inhabitants in 2050 than in 2010.<sup>103</sup> Both strengthening the linkages between urban and rural areas and developing urban and peri-urban agriculture will therefore gain in importance. As the competition increases between urban/industrial uses of land in the urban and peri-urban perimeter, and as increased food supplies bring about greater traffic congestion and create unprecedented logistical challenges for food distribution systems, it is vital that cities assess their food dependencies, identify weaknesses and potential pressure points, and where possible, develop a variety of channels through which they can procure their food.<sup>104</sup> Urban and peri-urban agriculture—as well as the development of short food chains connecting cities to their local food shed—will therefore play an increasingly important role.

A wide range of social innovations has emerged in recent years to support the rebuilding of local food systems, primarily by reconnecting urban consumers with local food producers. This can be seen today both in high-income and in middle-income or low-income countries. In Montreal, Canada, for instance, urban agriculture initiatives include a city-managed Community Gardening Program and collective gardens managed by community organizations with impacts that go beyond improved food security and nutrition, contributing also to educational and empowerment goals.<sup>105</sup> Other Canadian provinces have also developed an impressive range of social innovations that encourage a

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102. See United Nations Dep't of Econ. & Soc. Affairs Population Div., *World Urbanization Prospects: The 2011 Revision*, 12 tbl.7, U.N. Doc. ST/ESA/SER.A/322 (2012).

103. *Id.*

104. See UNITED NATIONS FOOD & AGRIC. ORG., *FOOD, AGRICULTURE AND CITIES: CHALLENGES OF FOOD AND NUTRITION SECURITY, AGRICULTURE AND ECOSYSTEM MANAGEMENT IN AN URBANIZING WORLD* (2011).

105. E. Duchemin, F. Wegmuller & A.-M. Legault, *Urban Agriculture: Multi-Dimensional Tools for Social Development in Poor Neighbourhoods*, 1 FIELD ACTIONS SCI. REP. 43, 43–49 (2008).

shift in this direction.<sup>106</sup> The Local Food Act, adopted in November 2013 by the province of Ontario, establishes a Local Food Fund with the objective of increasing “awareness, access to, and demand for local food in the province,” as well as “support[ing] local food procurement in public sector institutions (schools, municipalities, hospitals, cafeterias).”<sup>107</sup> Meanwhile Toronto’s food strategy includes the Toronto Agricultural Program in support of urban agriculture and gives support to a Mobile Good Food Market initiative serving low-income communities.<sup>108</sup> In middle-income countries, examples include initiatives adopted by the City of Durban/eThekweni in South Africa, such as its Agroecology Delivery Program.<sup>109</sup> In Brazil, the achievements of the “Zero Hunger” strategy launched in 2003<sup>110</sup> were inspired in part by the example of Belo Horizonte a decade earlier, which deliberately sought to reconnect local “family farmers” to the poor of the *favelas*.<sup>111</sup> The strategy that sought to replicate this experiment at the scale of the country includes a range of programs that are territory based and seek to support the ability of “family farmers” to feed the cities. Among the innovations are the institutional recognition of family farming and the establishment of a ministry specifically dedicated to meeting their needs (the Ministry for Agrarian Development); “a low-income restaurant programme, food banks, community kitchens, and cisterns, . . . the improvement of facilities for the storage of food in rural areas,” as well as the encouragement of the “social solidarity” economy.<sup>112</sup> “Zero Hunger” was further strengthened in 2008 with the introduction of the

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106. See, e.g., ONTARIO MINISTRY OF AGRIC., FOOD AND RURAL AFFAIRS, MODELS AND BEST PRACTICES FOR BUILDING SUSTAINABLE FOOD SYSTEMS IN ONTARIO AND BEYOND (Irena Knezevic et al. eds., 2013); Harriet Friedman, *Scaling Up: Bringing Public Institutions and Food Service Corporations into the Project for a Local, Sustainable Food System in Ontario*, 24 AGRIC. & HUM. VALUE 389, 389–96 (2007).

107. *Local Food Act*, TORONTO FOOD POL. COUNCIL (Nov. 11, 2013), <http://tfpc.to/policy/local-food-act>.

108. *Food Strategy Update: The Mobile Good Food Market*, TORONTO FOOD POL. COUNCIL (Jan. 29, 2013), <http://tfpc.to/policy/food-strategy-update-the-mobile-good-food-market>; *Toronto Agricultural Program Update*, TORONTO FOOD POL. COUNCIL (Dec. 2, 2013), <http://tfpc.to/policy/toronto-agricultural-program-update>.

109. See Special Rapporteur on the Right to Food, *Mission to South Africa*, Hum. Rts. Council, ¶ 48, U.N. Doc. A/HRC/19/59/Add.3 (Jan. 13, 2012) (by Olivier De Schutter).

110. See generally MINISTRY OF AGRARIAN DEV., THE FOME ZERO (ZERO HUNGER) PROGRAM: THE BRAZILIAN EXPERIENCE (Jose Graziano et al. eds., 2011).

111. Cecilia Rocha & Iara Lessa, *Urban Governance for Food Security: The Alternative Food System in Belo Horizont, Brazil*, 14 INT’L PLAN. STUD. 389, 389–95 (2009).

112. See Special Rapporteur on the Right to Food, *Mission to Brazil*, Hum. Rts. Council, ¶¶ 33, 50, U.N. Doc. A/HRC/13/33/Add.6 (Feb. 19, 2009) (by Olivier De Schutter).

“Citizen’s Territory Programme,” which focuses on the least-developed, rural territories, and includes a strong social participation component.<sup>113</sup> Many other such examples could be cited.

### *B. Deploying National Strategies*

However innovative they may be, local initiatives can only succeed and be “scaled out” by successful experiments being replicated across large regions if they are supported—or at least not obstructed—by policies adopted at the national level. However, the insistence of human rights bodies on the need for States to adopt long-term, multiyear strategies for the realization of the right to food is primarily guided by concerns other than support for local innovations. The Committee on Economic, Social and Cultural Rights, the body of independent experts tasked with supervising compliance with the International Covenant on Economic, Social and Cultural Rights (ICESCR), recommends that State parties to the ICESCR work towards “the adoption of a national strategy to ensure food and nutrition security for all, based on human rights principles that define the objectives, and the formulation of policies and corresponding benchmarks.”<sup>114</sup> When the Member States of the FAO negotiated a text that became the *Voluntary Guidelines to Support the Progressive Realization of the Right to Adequate Food in the Context of National Food Security*, finally adopted by the FAO Council on November 23, 2004, they included a guideline (No. 3) encouraging the adoption of

a national human-rights based strategy for the progressive realization of the right to adequate food . . . [which] include[s] objectives, targets, benchmarks and time frames; and actions to formulate policies, identify and mobilize resources, define institutional mechanisms, allocate responsibilities, coordinate the activities of different actors, and provide for monitoring mechanisms.<sup>115</sup>

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113. *Id.* ¶¶ 37, 50.

114. Comm. on Economic, Social & Cultural Rights, *Substantive Issues Arising in the Implementation of the International Covenant on Economic, Social and Cultural Rights: General Comment 12*, 20th Sess., Apr. 26–May 14, 1999, ¶ 21, U.N. Doc. E/C.12/1999/5 (May 12, 1999).

115. UNITED NATIONS FOOD & AGRIC. ORG., VOLUNTARY GUIDELINES TO SUPPORT THE PROGRESSIVE REALIZATION OF THE RIGHT TO ADEQUATE FOOD IN THE CONTEXT OF NATIONAL FOOD SECURITY 11 (2005), available at <ftp://ftp.fao.org/docrep/fao/009/y7937e/y7937e00.pdf>. The *Guidelines* are appended to the *Rep. of the 30th Session of the Comm. on World Food Sec. (CFS)*, 127th Sess., Nov. 22–27, 2004, ¶¶ 3.1–3.3, U.N. Doc. CL 127/10-Sup.1 (2004).

Such strategies are a particularly useful governance tool to achieve transitions in food systems. First, they identify the measures to be adopted, thus assigning responsibilities across different departments, as well as setting clear deadlines. This increases accountability: a failure to deliver shall be noticed and shall be imputable to specific bodies that will be called upon to justify lack of implementation; monitoring by independent bodies—including courts, national human rights institutions, or food and nutrition councils—is facilitated. Monitoring and evaluation of food security policies ensure permanent feedback and thus learning from experience, so that such policies are constantly improved in light of successes and failures in implementation. It also allows for a “whole-of-government” approach in which various policies in the areas of health, education, employment and social protection, agriculture, and rural development are coordinated. This is consistent with the idea that poor nutritional outcomes are explained not by one single factor but by a range of factors, taking into account the full set of immediate, underlying, and basic causes (respectively at the individual, the household, and the societal levels).<sup>116</sup> Because of the multi-causal nature of hunger and malnutrition, combating it calls for a multi-sectoral approach, involving the full range of relevant ministries or departments. And it allows the identification of synergies between programs that fall under the responsibility of different departments, such as school-feeding programs that source from local, small-scale producers or food-for-work programs that improve infrastructure in rural areas. Assigning responsibilities also facilitates coordination in States with a federal structure to improve alignment between policies pursued at different levels of government.<sup>117</sup> And finally, it creates a predictable framework,

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116. LISA C. SMITH ET AL., INT’L FOOD POLICY RESEARCH INST., THE IMPORTANCE OF WOMEN’S STATUS FOR CHILD NUTRITION IN DEVELOPING COUNTRIES: RESEARCH REPORT 131, at 7 (2003) (based on the conceptual framework between immediate, underlying and basic causes of poor nutritional outcomes initially presented by the UNITED NATIONS CHILDREN’S FUND (UNICEF), THE STATE OF THE WORLD’S CHILDREN 23, 33 (1998)).

117. For instance, writing in his official capacity as the U.N. Special Rapporteur on the Right to Food, this author recommended that Canada adopt a food policy for the country, “clearly delineating the responsibilities of public officials at the federal, provincial/territorial, and municipal/local levels, identifying the measures to be adopted and the associated time frames, and ensuring that initiatives adopted at municipal and provincial levels, particularly for the rebuilding of local food systems, are adequately supported” and adding that “as part of this strategy [Canada should have] a nationally funded children and food strategy (including school-feeding food literacy and school garden programmes) to ensure that all children at all times have access to healthy and nutritious food.” See Special Rapporteur on the Right to Food, *Mission to Canada*, Hum. Rts. Council, 22d Sess., ¶ 69, U.N. Doc. A/HRC/22/50/Add.1 (Dec. 24, 2012) (by Olivier De Schutter).

attracting investors and allowing the private sector to adapt to what the strategy announces.<sup>118</sup>

Most relevant in this context, multiyear strategies allow the combination of short-term approaches (that prioritize access to food for the hungry) and long-term concerns (removing the structural causes of hunger), building bridges between them. The careful sequencing of actions matters in this regard, requiring strong cross-sectoral coordination. For instance, support to small-scale food producers should be paired with investments in local food packaging and processing industries and in food retail to maximize the benefits to the local economy of the growth of the agricultural sector. Support to small-scale food producers should also go hand-in-hand with investments in the manufacturing and services sectors for the delivery of consumer items because increased incomes in rural areas have the potential to raise demand for locally traded goods and services. This “consumption linkage” is estimated to be four to five times more important than the “production” linkage between food producers and agro-processing activities.<sup>119</sup> The multiplier effects are particularly significant where agricultural growth is widely spread across large segments of a very poor population.

The gradual substitution of policies focused on low prices by rights-based social protection as a means of ensuring access to adequate food to the poorest groups of the population again illustrates the importance of a careful sequencing of reforms. Today, 75 to 80 percent of the world population still does not have access to social security to shield them from the effects of unemployment, illness, or disability—not to mention crop failure or soaring food costs.<sup>120</sup> There is now an international consensus in favor of making the full realization of the right to social security a priority.<sup>121</sup> On June 14, 2012, the International Labour

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118. Multiyear, national strategies also allow public programs to bridge the gap between short-term and ad hoc approaches and development: for instance, it has been found that school feeding programs work best when part of multiyear strategies with predictable and secured funding because this favors investment in local food producers supplying the program and in the skills required to implement them—including cooking skills that must be mobilized within schools or community kitchens serving schools. See WORLD FOOD PROGRAMME, LEARNING FROM EXPERIENCE: GOOD PRACTICES FROM 45 YEARS OF SCHOOL FEEDING 27–30, available at <http://documents.wfp.org/stellent/groups/public/documents/communications/wfp223424.pdf>.

119. Luc Christiaensen et al., *The (Evolving) Role of Agriculture in Poverty Reduction—An Empirical Perspective*, 96 J. DEV. ECON. 239, 242–43 (2011).

120. INT’L LABOUR ORG., SOCIAL PROTECTION FLOOR FOR A FAIR AND INCLUSIVE GLOBALIZATION: REPORT OF THE ADVISORY GROUP, at xxi (2011), available at [http://www.ilo.org/public/english/protection/spfag/download/background/bachrep\\_en.pdf](http://www.ilo.org/public/english/protection/spfag/download/background/bachrep_en.pdf).

121. Int’l Labour Conference, 101st Sess., May 30, 2012, *Text of the Recommendation Concerning National Floors of Social Protection*, 2, 4.

Conference adopted the *Recommendation (No. 202) Concerning National Floors of Social Protection*, with 452 votes in favor and 1 abstention.<sup>122</sup> The G-20 has subsequently acknowledged the importance of this objective.<sup>123</sup> In the long run, the establishment of robust social protection schemes in line with this recommendation should lead governments to shift away from their exclusive focus on maintaining low prices of food items—a focus that has often come at the expense of food producers, particularly of course the least competitive among them. Cash transfers to poor families have shown their effectiveness in reducing child poverty and hunger.<sup>124</sup> As long as gaps remain in social protection, however, food price inflation will continue to be a serious threat to the right to food of low-income households. Thus, while low food prices may not be a long-term solution—both because of the fiscal cost of subsidies to farmers and because a policy focused on keeping prices low may ultimately harm the least competitive food producers—they remain, in the short term, vital. The social protection agenda and the agricultural agenda should be better aligned with one another to gradually succeed in making the transition.

### *C. Shaping an Enabling International Environment*

Global governance also has an important role to play in support of the progressive realization of the right to food. Since its reform in 2009, the Committee on World Food Security (CFS) has been making a major contribution to the global food security agenda.<sup>125</sup> The CFS brings together a wide variety of stakeholders—governments of course, but also

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122. *New ILO Recommendation on Social Protection Floors*, INT'L LAB. ORG. (June 19, 2012), [http://www.ilo.org/brussels/WCMS\\_183640/lang--en/index.htm](http://www.ilo.org/brussels/WCMS_183640/lang--en/index.htm).

123. Press Release, G20 Leaders, G20 Leaders Declaration ¶ 22 (June 4–5, 2012).

124. See HIGH-LEVEL PANEL OF EXPERTS ON FOOD SEC. & NUTRITION OF THE COMM. OF WORLD FOOD SEC., SOCIAL PROTECTION FOR FOOD SECURITY 46–48 (2012), available at [http://www.fao.org/fileadmin/user\\_upload/hlpe/hlpe\\_documents/HLPE\\_Reports/HLPE-Report-4-Social\\_protection\\_for\\_food\\_security-June\\_2012.pdf](http://www.fao.org/fileadmin/user_upload/hlpe/hlpe_documents/HLPE_Reports/HLPE-Report-4-Social_protection_for_food_security-June_2012.pdf).

125. CFS is an FAO intergovernmental committee that was transformed at the end of 2009 into an inclusive forum. Although governments are the only voting members on any decisions to be adopted, U.N. agencies working in the area of food security, international financial institutions (including the World Trade Organization) civil society organizations, and the private sector participate in reaching an international consensus on the measures that are desirable to improve global food security. Comm. of World Food Sec., *Reform of the Committee on World Food Security*, 35th Sess., Oct. 14–15, 17, 2009, ¶¶ 11–12, FAO Doc. CFS:2009/2Rev. 2 (Oct. 2009). It has been described as “the foremost inclusive international and intergovernmental platform for a broad range of committed stakeholders to work together in a coordinated manner and in support of country-led processes towards the elimination of hunger and ensuring food security and nutrition for all human beings.” *Id.* ¶ 4.

civil society, international agencies, and the private sector—who each provide a different framing of the challenges the food systems face, thus stimulating a process of collective learning across different constituencies. It provides a forum allowing for an iterative process to take place, to gradually arrive at recommendations based on a consensus across various groups of stakeholders. These recommendations are collected in the *Global Strategic Framework for Food Security and Nutrition*, a first version of which was endorsed in October 2012.<sup>126</sup> The *Framework* is a rolling document, conceived to improve coordination and guide synchronized action by a wide range of stakeholders in support of global, regional, and country-led actions in support of the realization of the right to food.<sup>127</sup> It is also a learning tool, as it will be revised in light of both successes and failures in the implementation of the recommendations so that policies are gradually improved and the range of options available to States are enlarged.

The role of the CFS should gain in importance in the future as we become more aware of the interdependence of efforts at local, national, regional, and global levels and of the need to accelerate learning. Indeed, just as local-level initiatives cannot succeed without support from national-level right-to-food strategies, efforts at the domestic level require international support to bear fruit. The redefinition of the global development goals provides another opportunity to move towards improved coherence in the global governance of food security. In the outcome document of the Rio+20 conference, “The Future We Want,” heads of States and governments reaffirmed their “commitments regarding the right of everyone to have access to safe, sufficient and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger.”<sup>128</sup> In its final report of May 2013, the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda proposed to include ensuring “food security and good nutrition” among the universal goals and targets to be agreed upon, with target 5(a) referring to “End hunger and protect the right of everyone to have access to sufficient, safe, affordable, and nutritious food.”<sup>129</sup> Similar conclusions emerged from the Madrid

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126. A Second Version was adopted in October 2013, at the 40th plenary session of the CFS. Comm. of World Food Sec., *Global Strategic Framework for Food & Nutrition (GSF)*, 40th Sess., Oct. 7–11, 2013, FAO Doc. CFS 2013/40/5 Add.1 (2013).

127. Comm. of World Food Sec., *Global Strategic Framework for Food & Nutrition (GSF)*, 39th Sess., Oct. 15–20, 2012, ¶¶ 2–12, FAO Doc. CFS 2012/39/5 Add.1 (2012).

128. Conference on Sustainable Development, June 20–22, 2012, *Rep. of the U.N. Conference on Sustainable Dev.*, ¶ 108, U.N. Doc. A/CONF.216/16 (2012).

129. HIGH-LEVEL PANEL OF EMINENT PERSONS ON THE POST-2015 DEV. AGENDA, A NEW GLOBAL PARTNERSHIP: ERADICATE POVERTY AND TRANSFORM ECONOMIES

High-Level Consultation on Hunger, Food Security, and Nutrition in the Post-2015 Development Framework, convened on April 4, 2013.<sup>130</sup> At its fortieth plenary session, building on this emerging consensus, the CFS highlighted “the essential role of food security and nutrition and poverty eradication in the elaboration of the post-2015 development agenda,” and it mandated that its Bureau ensure this key objective would be reflected in this agenda.<sup>131</sup>

#### CONCLUSION

The productivist paradigm we have inherited from fifty years ago was shaped to respond to a very different set of problems than those we are facing today. The resulting dominant food system in rich countries succeeds in doing one big thing: it is well equipped to produce large volumes of commodities for the food-processing industry, which in turn does reasonably well at ensuring a relatively stable availability of cheap calories to the populations. But this has come with huge costs—externalities that have been borne by the collectivity rather than accounted for in the price of food. Diets relying on processed foods have caused obesity and ill-health. The food systems have developed a toxic addiction to fossil energies and have caused ecological damage on a large scale most notably through their significant contribution to climate change. They have rewarded economies of scale and prioritized efficiency, leading to the disappearance of a large number of small farms. And they have led to considerable imbalances on global markets, increasing the reliance of low-income countries on food imports—a paradox of course, because these countries are mostly agriculture based and were, until thirty years ago, able to satisfy their own needs.

There is a strange mismatch, however, between the broad consensus that exists about this assessment and the considerable obstacles that the transition presents. Rich countries face exploding health-care costs and environmental degradation as a result of industrial ways of producing food and the expansion of mono-cropping schemes. In many low-income countries, undernutrition is still a major problem. Both groups of countries have an interest in the transition occurring. But both face a

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THROUGH SUSTAINABLE DEVELOPMENT 40 (2013), *available at* [http://www.un.org/sg/management/pdf/HLP\\_P2015\\_Report.pdf](http://www.un.org/sg/management/pdf/HLP_P2015_Report.pdf).

130. UNITED NATIONS FOOD & AGRIC. ORG. & WORLD FOOD PROGRAMME, THE MADRID HIGH-LEVEL CONSULTATION ON HUNGER, FOOD SECURITY AND NUTRITION IN THE POST-2015 DEVELOPMENT FRAMEWORK: BACKGROUND NOTE AND AGENDA 3–4 (Apr. 4, 2013), *available at* [http://www.fao.org/fsnforum/post2015/sites/post2015/files/files/Background\\_and\\_Agenda\\_HLM\\_on\\_FSN.pdf](http://www.fao.org/fsnforum/post2015/sites/post2015/files/files/Background_and_Agenda_HLM_on_FSN.pdf).

131. Comm. of World Food Sec., *Report*, 40th Sess., Oct. 7–11, 2013, ¶ 81, FAO Doc. CFS 2013/40 (2013).

number of lock-ins that obstruct change. Perhaps the most significant lock-in is political in nature: large actors opposing change—because they are the beneficiaries of the current system—have acquired a veto power allowing them to block reform, and it takes political courage to confront them. The growth of social innovations in food systems, often local in nature and often led by citizens and other stakeholders setting up hybrid governance systems to reclaim control over the food systems, is therefore key to the transition that is now urgently required. Of course, national-level policies matter, as does international coordination; ultimately however, only through more democracy in the food systems can change happen. By expanding the range of opportunities for people to choose from and allowing them to create alternatives to the dominant food system they have come to depend on, we allow them to move from being passive consumers to becoming active citizens. It is by empowering them that new transformative possibilities can emerge.